



THE UNIVERSITY *of* EDINBURGH

Edinburgh Research Explorer

Artisanal gold mining and farming

Citation for published version:

Mkodzongi, G & Spiegel, S 2019, 'Artisanal gold mining and farming: Livelihood linkages and labour dynamics after land reforms in Zimbabwe', *The Journal of Development Studies*, vol. 55, no. 10, pp. 2145-2161. <https://doi.org/10.1080/00220388.2018.1516867>

Digital Object Identifier (DOI):

[10.1080/00220388.2018.1516867](https://doi.org/10.1080/00220388.2018.1516867)

Link:

[Link to publication record in Edinburgh Research Explorer](#)

Document Version:

Publisher's PDF, also known as Version of record

Published In:

The Journal of Development Studies

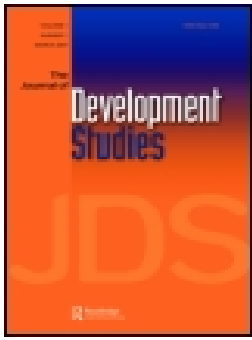
General rights

Copyright for the publications made accessible via the Edinburgh Research Explorer is retained by the author(s) and / or other copyright owners and it is a condition of accessing these publications that users recognise and abide by the legal requirements associated with these rights.

Take down policy

The University of Edinburgh has made every reasonable effort to ensure that Edinburgh Research Explorer content complies with UK legislation. If you believe that the public display of this file breaches copyright please contact openaccess@ed.ac.uk providing details, and we will remove access to the work immediately and investigate your claim.





Artisanal Gold Mining and Farming: Livelihood Linkages and Labour Dynamics after Land Reforms in Zimbabwe

Grasian Mkodzongi & Samuel Spiegel

To cite this article: Grasian Mkodzongi & Samuel Spiegel (2018): Artisanal Gold Mining and Farming: Livelihood Linkages and Labour Dynamics after Land Reforms in Zimbabwe, The Journal of Development Studies, DOI: [10.1080/00220388.2018.1516867](https://doi.org/10.1080/00220388.2018.1516867)

To link to this article: <https://doi.org/10.1080/00220388.2018.1516867>



© 2018 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 21 Oct 2018.



Submit your article to this journal [↗](#)



Article views: 54



View Crossmark data [↗](#)



Artisanal Gold Mining and Farming: Livelihood Linkages and Labour Dynamics after Land Reforms in Zimbabwe

GRASIAN MKODZONGI* & SAMUEL SPIEGEL**

*Tropical Africa-Land and Natural Resources Research Institute, Harare, Zimbabwe, **Centre of African Studies, School of Social and Political Science, University of Edinburgh, Edinburgh, United Kingdom

(Original version submitted August 2017; final version accepted July 2018)

ABSTRACT *While the rural development consequences of Zimbabwe's Fast Track Land Reform Programme have been heavily debated, there is a dearth of literature focusing on the post-land reform inter-relations between artisanal and small-scale gold mining (ASGM) and farming. This article discusses the growing ASGM sector, encapsulated by the phrase 'mari yaputika'/'gold has detonated', examining the impacts of 'liberating' mineral resources in farming areas previously inaccessible to the rural poor. Drawing on research in Mhondoro Ngezi District, we argue for more subtle understandings of smallholder farming/ASGM linkages in relation to changing labour and class dynamics, challenging accounts that under-recognise the multifaceted interconnect-edness of artisanal mining and farming.*

1. Introduction

Development scholars have widely argued that Zimbabwe's Fast Track Land Reform Programme (FTLRP) in 2000 led to inequitable outcomes while reshaping rural labour relations throughout the country (Laurie, 2016; Rutherford, 2017). On one hand, global newspapers have frequently presented a simplistic image of land reform in Zimbabwe as a vehicle for corruption and patronage through chaotic land seizure (Chari, 2013). On the other hand, however, some of the major outcomes of the FTLRP lie in how it allowed newly resettled peasant farmers access to natural resources that were previously enclosed and enjoyed by a minority of white farmers under the dualistic agrarian structure inherited from colonialism (Scoones, 2015; Mushongah & Scoones, 2012; Rutherford, 2016; Chimhowu & Woodhouse, 2008, 2010). Changes in agrarian structure have, in many districts, led to increased mobility across formerly inaccessible large-scale commercial farms (Mkodzongi, 2013). One significant, albeit under-studied, feature of this mobility is the upsurge in artisanal and small-scale gold mining (ASGM) by rural peasants and unemployed people from across Zimbabwe. As the late agrarian scholar Sam Moyo explained in his writings over seven years ago, land redistribution in the 2000s created powerful possibilities for envisioning new ways of 'belonging' in rural territories and led to new artisanal mining activities alongside changes in farming. Moyo described interviewees

Correspondence Address: Samuel Spiegel, School of Social and Political Science, University of Edinburgh, Chrystal Macmillan Building, 15a George Square, Edinburgh, EH8 9LD, UK. Email: sam.spiegel@ed.ac.uk

© 2018 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited

in Kwekwe who saw the proliferation of artisanal gold mining as reflecting the ‘liberation of mineral resources, which had been hidden under the monopolistic large-scale commercial farms’ (Moyo, 2011, p. 501). Years later, mining/farming linkages continue to shape rural labour trajectories and are in need of rigorous scrutiny.

Smallholder farming and small-scale mining are now two of the pillars of Zimbabwe’s economy. Although illegal under Zimbabwe’s colonial era mining laws, which still structure present-day mining policies (Dube et al., 2016; Spiegel, 2015), ASGM has become an increasingly widespread economic activity undertaken by socially differentiated groups with a wide range of education levels and economic backgrounds (Mabhena, 2012; Mpofu & Mpofu, 2017). Across the country, ASGM contributes to the livelihoods of over one million people directly (PACT, 2015). Yet, despite the upsurge in ASGM activities after Zimbabwe’s fast track land reforms, very little empirical research has been undertaken to derive insight into how this has altered the livelihoods of newly resettled peasant farmers, formally known as ‘A1 farmers’. Debates about artisanal mining in Zimbabwe have often been focused around claims of elite capture of natural resources and political patronage (Mawowa, 2013). Meanwhile, in scholarship on mining/farming linkages in Africa more broadly, narratives have tended to present artisanal mining as an off farm activity that is replacing or undermining peasant farming rather than complementing it. Such narrow accounts have occasionally triggered new calls for fundamentally rethinking the nature of mining/farming linkages in African contexts, with much critical research focused in West Africa, in some cases pointing to significant ASGM-generated funds complementing and supporting investment into smallholder farming (Hilson, 2016; Bryceson & Jönsson 2009; Banchrigah & Hilson 2010 ; Maconachie, 2011; Maconachie & Hilson, 2011; Cartier & Bürge, 2011; Pijpers, 2014; Van Bockstael, Bockstael, & Vlassenroot, 2012). Some studies have given prominence to recent conflicts between farmers and miners or long histories of miner-farmer contestations (Musemwa, 2009), although in many places across rural Zimbabwe the two activities are increasingly intertwined, despite the well-documented environmental destruction and land degradation associated with ASGM (Ncube-Phiri, Mucherera, & Ncube, 2015).

This article challenges de-contextualised generalisations about farmer-miner linkages by considering the impacts of the fast track land reforms in Zimbabwe which allowed peasants access to natural resources that were formerly enclosed under the previous agrarian structure. We contribute to debates by examining a case in central Zimbabwe where increasing mineral resource extraction reconfigured income generation strategies amongst different economic classes and has influenced agricultural investments among peasant farmers. The paper is based on ethnographic data gathered in Mhondoro Ngezi where interviews explored positive and negative relationships between gold mining and farming, focusing on how labour identities, socio-economic relations and challenges are understood. The first section below presents background on how ASGM has been addressed in literatures on mining/farming links in Africa and beyond before outlining the context for our fieldwork and our methodology and analytic approach. The next section discusses labour dynamics in Mhondoro Ngezi, where increases in ASGM activity in areas that had long been farmed highlight a need for unpacking changing labour identities and concerns about local exploitation in connection with complex socio-economic networks, class dynamics, and power relations. Whereas much has been written elsewhere about ‘farm invasions’ by illegal miners, our analysis expands on this concern by exploring the significance for rural development of the flow of funds not only from ASGM into farming but also from agriculture into investments in ASGM. We conclude by suggesting how research on farming-ASGM linkages that is sensitive to class dynamics can deepen understandings of the ‘range of exclusions and inclusions’ (Moyo, 2011) produced by land reforms and present-day rural development policies, with implications for rethinking the agency of those involved in both informal mining and smallholder farming not only in Zimbabwe but in other contexts as well.

2. Background on the artisanal mining/farming nexus, research context, and methods

The upsurge of ASGM across sub-Saharan Africa involving a wide variety of ‘labour intensive activities without mechanisation’ (Weng et al., 2015) has led to wide-ranging debates about the ways in which poverty-driven gold mining fits – or remains invisible – within academic discourses on rural livelihoods and development (Hilson & Maconachie, 2017; Huggins, Buss, & Rutherford, 2017; Mutemeri, Walker, Coulson, & Watson, 2016). Hilson, Hilson, Maconachie, McQuilken, and Goumandakoye (2017) argue that a general failure of policy-makers as well as researchers to engage closely with the concerns of ASGM-dependent communities has led to a severe lack of state support measures for regulating ASGM and a poor understanding of small-scale mining/smallholder farming linkages in Africa. Underpinning ASGM debates in many countries is the broader issue that structural adjustment and market liberalisation has ‘induced significant unemployment which has forced many people into illegal artisanal mining to supplement their incomes’ (Weng et al., 2015, p. 65). This is the case for many countries such as Ghana, Tanzania, Senegal, and Mozambique (Fisher, Mwaipopo, Mutagwaba, Nyange, & Yaron, 2009; Aizawa, 2016; Bryceson & Geenen, 2016; Hilson & Garforth, 2012; Okoh and Hilson, 2011; Persaud, Telmer, Costa, & Moore, 2017). Weng et al. (2015) observed that in Sierra Leone and the Democratic Republic of Congo, among other places, artisanal mining has become a supplementary economic activity to alleviate poverty. In Mali and Ghana, complex synergies between farming and mining – emerging out of moves to ‘branch out’ into ASM – also have emerged as major influences in rural economies ‘as market liberalisation has reduced the profits of smallholding considerably’ (Hilson & Garforth, 2012).

Discussions of livelihoods diversification as part of a trend of *de-agrarianisation* and *de-peasantisation* (see Bryceson, 2004) have explained some of the dynamics of change in rural African settings. Simultaneously, countering notions of de-agrarianisation and de-peasantisation, it has been argued that the crises triggered by neo-liberalism in the 1990s have led to the re-politicisation of the peasantry across countries of the south, particularly in former settler colonies of Southern Africa, suggesting that trajectories of ‘re-peasantisation’ are taking place (Moyo & Yeros, 2005; Moyo & Mine, 2016); although farmers are diversifying livelihoods through engaging in off farm activities such as ASGM (especially among the rural poor in Africa), agriculture remains at the centre of their social reproduction strategies. Past literature has also reflected on the nuances of envisioning ‘mining farmers’ versus ‘farming miners’ – as Maconachie and Binns (2007) phrased the conundrum in the context of Sierra Leone, drawing attention to a case where large-scale population displacement and economic transition in a post-war setting has reconfigured, but not eliminated, the co-existing importance of both sectors in the same regions.

In Zimbabwe, mining and farming have often co-existed alongside many other informal income generation strategies – with past work noting that livelihood struggles have been shaped by a myriad of political and historical forces that underpin unemployment crises (Sachikonye, 2011). Mondlane and Shoko (2003) and Maponga and Ngorima (2003) reviewed how involvement in the ASGM sector became an exceedingly vital coping strategy as a seasonal, part-time, and permanent livelihood activity in Zimbabwe in the 1990s and early 2000s. National increases in ASGM activity started to emerge in the 1990s with the negative effects of Economic Structural Adjustment Programmes (ESAPs) and drought constrained employment prospects in agriculture (Mabhena, 2012). Upsurges of ASGM in the aftermath of fast track land reforms in the early 2000s created further impetus for livelihood diversification among diverse populations, including newly resettled peasant farmers. As Zimbabwe’s post-2000 economic crises unfolded, fuelled by a variety of deleterious policy choices and politicised governance connected to agriculture and also other sectors (Sachikonye, 2011), several studies in *The Journal of Development Studies* have been detailed in unpacking extreme shocks experienced by households, often reflecting on agricultural challenges (Hoddinott, 2006) and changing poverty dynamics (Baudron, Andersson, Corbeels, & Giller, 2012; Stoeffler, Alwang, Mills, & Taruvinga, 2016) but *not* including the role of informal gold mining. In the mid-2000s in Zimbabwe, while relatively few studies were conducted on social issues in ASGM communities and university capacities to conduct mining research were constrained by the economic crises, mining

ascended in importance as a source of food security (Kamete, 2008; Spiegel, 2009a; Zwane, Love, Hoko, & Shoko, 2006).

As gold extraction (including digging, transporting ore, mineral processing, and so forth) has provided diverse people with revenue for investment in agriculture, the dynamics surrounding this are especially important to appreciate as the Zimbabwean government has been unable to adequately support newly resettled farmers with agricultural inputs such as fertilisers and seed in the wake of fast-track land reform. As discussed below, in the years following Zimbabwe's fast track land reforms, artisanal gold mining has, on one hand, become a growing source of income that is further invested in agriculture and other domestic needs at a time when the country is facing a socio-economic crisis characterised by high levels of unemployment and cash shortages. However, on the other hand, the increasing role of gold mining in farmlands has underpinned the production of new class dynamics and concerns about labour exploitation. To examine differing views regarding the labour and livelihood diversification connections between mining and farming activities in the same regions, our study draws on over seven years of ethnographic research work undertaken in the Mhondoro Ngezi district of Zimbabwe. Prior to 2016, the first author's earlier work focused on tracing the life histories of 175 households who were resettled in this area during the implementation of Zimbabwe's fast track land reforms, examining the trajectory of livelihoods among newly resettled households in the years following the land reform. The second author's earlier work included life history and key informant interviews with 200 people involved in and affected by small-scale gold mining in this region and other areas in Zimbabwe. Relationships nurtured by both authors with various informants shaped an interview strategy, carried out in 2016 and 2017, that involved interviewing 25 people who were actively involved in both farming and mining at three mining sites in Mhondoro Ngezi – Etina farm, Lincoln farm, and Just Right farm. These are all former white owned commercial farms located 20 kilometres from the town of Kadoma that were redistributed under the fast track land reforms. As outlined below, a semi-structured questionnaire and purposive sampling technique was used for engaging informants¹ in these sites, whose insights were complemented by interviewing others, identified through snowball sampling, whose livelihoods were linked to the mining economy even if not directly involved in mining.

Of note, although the former owners of these three farms were officially engaged in livestock production, the presence of old mine shafts at the farms – discovered after the farms were redistributed – indicates that gold mining in these areas did not simply begin 'post' land reform. In a context where different actors had different perceptions of the mining history of the region, the interview questions developed for this study focused particularly on how resettled farmers saw their involvement and investments in mining in the years that followed. In some cases, interviewees spent long periods pursuing mining careers and maintaining farms where they grow crops for their own consumption and for sale. While mining is often viewed as a labour intensive activity that requires much more capital than farming, the questions considered both negative and positive relationships between mining and farming, including perspectives on cases where, if mining failed to yield revenue, those involved returned to farming. At the same time, while our approach may be analogous to that of Maconachie (2011), who examined situations where (in Sierra Leone) artisanal mining revenues have supported agriculture, a noteworthy contrast can be made: the situations we encountered in Zimbabwe tended to show the converse movement of investment, with gold mining widely seen to be the increasingly dominant income source.

The three sites were chosen for fieldwork due to the widespread artisanal gold mining activities taking place in the area. Moreover, the high concentration of people who were engaged in both artisanal mining and farming in the area was a major factor in our decision to undertake fieldwork at these three sites. The location of the three research sites close to a road linking the area to the mining town of Kadoma nearby (approximately 20 km) made the area easily accessible for fieldwork. The close proximity to Kadoma helped us to trace the mobilities of miners between the mine sites and Kadoma where they frequented to source mining equipment and to sell their gold to dealers based in the town. It also allowed us to visit gold dealers and sponsors located in the town who broadened our

understanding of how the gold value chain operates from digging to local and international markets often involving illegal export of gold through porous borders. The close proximity of the gold mining locations to Kadoma meant that the research was able to move easily between locations, interviewing a wide range of informants along the way. While the chosen fieldwork site is unique due to its location on the great dyke (a mineral rich geological feature), the widespread mobility of miners across mining areas in various provinces have also influenced trajectories of social organisation of ASGM miners across various locations and regions. This mobility is key to the ways in which ASGM activities have unfolded in the aftermath of the fast track land reforms.

In our fieldwork area, artisanal miners operate in groups, locally known as syndicates, which generally comprise people who share kinship ties, are extended family members, or friends who have known each from their place of origin or those who have worked together at different mine sites over a long period of time. Some syndicates are made up of wage labourers employed by a sponsor. Although syndicates predominantly comprise male members (due to heavy manual work involved), women are also involved in syndicates either as sponsors who hire labour or as gold buyers or dealers who buy gold for resale locally or to gold smuggling syndicates. Women can also act as co-managers of a syndicate with their husbands. We therefore interviewed informants from various mining syndicates operating across the three farms, with care to ensure that our interviewees were of various classes, ethnicities, and genders coming from diverse geographical locations and social backgrounds. Some interviewees were poor peasants performing the labour intensive work of digging (including those who are also peasant farmers), while others had accumulated enough capital to become sponsors, having acquired mining equipment and machinery, and able to hire labour. Others were petty commodity brokers selling a wide variety of goods to the miners; still others were locals profiting from the commodity boom by opening retailing businesses selling a wide range of goods to the mining community. At one of our fieldwork locations (Etina), the upsurge in ASGM activities has boosted women-owned local businesses and thus integrated them into the ASGM value chain. Such businesses include, among others, catering services, vegetable markets, and vending of second hand clothing imported from urban areas and across Zimbabwe's borders.

The range of both formal and informal interviews undertaken with diverse informants (at both mine sites and along the way to Kadoma) enabled us to appreciate the ways in which artisanal gold mining and smallholder agriculture are intertwined, and how changing labour relations at mine sites are reshaping livelihoods and social differentiation among rural and peri-urban households. Our analytic approach built directly on the nuanced approaches developed by Scoones et al. (2012) and Moyo (2011), who stressed the need for understanding how experiences of agrarian transformation and livelihood diversification in post-land reform Zimbabwe are marked by inequalities of class and power, linking sector- and location-specific changes to wider processes. Our analytic approach also stresses uneven class dynamics rather than a single trend in order to understand the interface of ASGM and agriculture, and recognises explicitly the risk of oversimplifying cross-sector linkages.

3. A case study of informal gold mining after Zimbabwe's land reform

3.1. Gold mining in Mhondoro Ngezi's farm areas

Mhondoro Ngezi District is located along the great dyke, a geological feature that cuts across Zimbabwe, known to contain mineral deposits such as platinum group metals and other base metals. A wide variety of mining activities take place along the dyke, ranging from large-scale mining operations such as the South African owned Zimbabwe Platinum Mines (ZIMPLATS) and Chinese-owned ferrochrome mines (Makore & Zane, 2012) to widespread artisanal mining by heterogeneous groups of people, including peasants, unemployed youths, senior civil servants, and the military (Mawowa, 2013). Among the peasantry, ASGM provides an opportunity to diversify livelihoods at a time when agriculture alone does not provide a secure form of livelihood; for others such as unemployed youths it is a source of income given the high levels of unemployment in Zimbabwe's

urban areas. Among the so-called ‘sponsors’ ASGM has provided a pathway for capital accumulation through exploitative labour relations that now dominate the sector. While Zimbabwean businessmen play significant roles, Chinese investors have also increasingly become involved in ASGM in recent years, as mine operators and mill owners (as most artisanal and small-scale miners cannot afford the equipment for milling ore).²

Mpofu and Mpofu (2017), assessing knowledge and attitudes regarding chemical contamination among a sample group of artisanal gold miners in Mhondoro Ngezi, report that 44 per cent of miners mentioned ‘erratic rainfall that made farming an unattractive and unprofitable option’ (p. 74). As echoed in our research, miners interviewed argued that although farming was a comparatively low health risk occupation, it had ‘low returns’ compared to mining. It is also important to take into account how miners conceptualise ‘viability’ of both mining and farming careers as these are influenced by diverse factors often beyond their control. For example, mining can be profitable for one year or season but can be affected by a slump in commodity prices or difficulties in finding the gold. In farming, a bumper harvest can be followed by a drought leading to crop failure (Mkodzongi, 2013).

The turn towards involvement in ASGM activity in Mhondoro Ngezi can be historicised in several ways. Due to the area’s location on the mineral rich great dyke geological formation, it has always been frequented by artisanal miners in search of supplementary income from the early 1980s (after Zimbabwe’s independence) until 2000, when Zimbabwe’s fast track land reforms were implemented. In the period following land reforms, there has been increased mobility across formerly enclosed large-scale commercial farming areas, leading to an upsurge in artisanal gold mining activities. Zimbabwe’s indigenisation policies (Mkodzongi, 2016) that sought to force foreign-owned companies to sell a 51 per cent stake to indigenous Zimbabweans has had the effect of generating new discourses of local ownership of natural resources among local people. While perspectives vary, newly resettled farmers in Mhondoro Ngezi have viewed land reform as a process that has opened up access to land and mineral resources from which they were previously excluded. New discourses of ‘freedom mining’ have emerged to justify engagement in ASGM; underpinning this new wave of ASGM is the idea that mineral resources have been ‘liberated’ by the land reform. At some mine sites unemployed youths have utilised their association with the ZANU PF political party to legitimise their engagement in gold mining activities.

People engaged in ASM activities at the three study sites come from diverse socio-economic backgrounds and locations. Most of the miners were farmers who were resettled under the fast track land reforms. Some are ‘professional’ artisanal gold miners who came from areas as far as Silobela, Lower Gweru, and Gokwe North whose involvement in ASGM predates the fast track land reform. Others came from the nearby communal areas of Mhondoro Ngezi and Sanyati. Some are urbanites who came from the nearby towns of Kadoma and Chegutu and were resettled in the area. Although some came from the urban areas, most were of rural origin. Nonetheless, the increase in urbanites abandoning the city for mining areas underscores how land reform opened up the countryside for alternative livelihoods based on natural resource extraction activities.

Many of our informants noted difficulties in generating revenue from artisanal mining, although some indeed accumulated enough funds to acquire agricultural assets such as livestock and farm implements as well as pay school fees for their children and look after their extended families. Others had acquired mining equipment that they could rent to other miners for a fee. The more successful ones had become rural entrepreneurs operating a wide range of local business such as grocery shops, butcheries, bars, and grinding mills. This signals that a new process of ‘accumulation from below’ and social differentiation is underway among the miners. Field data shows that some people have been more successful in accumulating capital – enabling the procurement of mining equipment and hiring labour – while others have struggled, remaining wage labourers working for the more successful miners. Among those who struggled were those who could not

acquire capital to procure mining equipment or those who could not obtain a sponsor as noted by an informant at Etina:

We face a lot of problems here, for example you may be interested in mining but there is no sponsorship. Most sponsors want to help where there are signs of money or where they see value. (Bere, interviewed at Etina 23 February 2017)

Others highlighted the exploitative nature of ASGM and in particular how sponsors tend to benefit more from mining than those who do the digging as noted by an informant during an interview:

As owners they want to get 70 per cent and the worker will get 30 per cent. The 30 per cent will be shared among our group of 6/7 people. These are the problems we face; sometimes we just sacrifice for that because it's better than being a thief. The conditions are very tough considering that we have families to support. (Jona, interviewed at Etina 23 February 2017)

The above shows that while some miners have benefited from mining and accumulating capital to invest in various enterprises, some have struggled and are only hanging in there because of lack of other economic opportunities.

Trajectories of accumulation and struggle among artisanal miners vary substantially – partly depending on personal circumstances – as observed by this interviewee:

The cars, trucks, water pumps, electricity generators I have took a very long time for me to acquire. However, I had to buy the equipment to support the business. The last time I sold gold to Fidelity Printers it was being bought at \$38 a gram. After that the gold deposits depleted and I was forced to start looking for the gold deposits elsewhere, that is what I am currently doing by going underground to look for the gold belts. That is why I am saying in mining you definitely make some losses. You also struggle to acquire the diesel for running mining equipment. You need to buy workers food and pay wages. This is very difficult when you are not making any money from the mine. When you finally get the sample³ you would have struggled for a long time. On average you can go for two, three or four years struggling with very little success. I know if I continue doing this business it will eventually work out. If you get some news that money⁴ has come out from a nearby mine it gives you hope and motivation that something might come out from your own mine, and others also encourage you to go underground where the gold is, that's when you continue going underground. (interview with Chidemo at Just Right farm)

During fieldwork, we encountered several cases where mining had generated income that was invested in both agriculture and small retailing businesses, enabling the accumulation of significant capital and assets. Mining has also involved people of diverse ages; those who do the labour intensive work of digging tend to be young men driven into mining by the dearth of other sources of income given the difficult economic conditions currently in Zimbabwe. Lack of capital and equipment forces many miners into exploitative labour relations with those who possess capital and equipment and are known as 'sponsors' – who tend to dominate the ASM value chain due to their ability to hire labour, buy gold at cheaper prices and resale it at a profit in Kadoma or to the black market linked to the South African gold market. Sponsors range from businessmen based in Kadoma, civil servants such as District Administrators, Governors, senior police, and army officers, political elites connected to ZANU PF, and Chinese businessmen. Unlike the ordinary miners who operate illegally, 'sponsors' tend to be politically connected and possess mining licences that allow them to buy gold without the risk of arrest. As noted earlier, the involvement of politically connected individuals at the higher end of the ASGM value chain has promoted exploitative labour relations and a new wave of primitive accumulation of capital linked to global commodity circuits through porous borders. In this sense,

what has unfolded has resonated with discussions in other contexts in Africa where organised looting has been an ‘enduring strategy for some social groups’ (Kevane, 2015, p. 346).

While economic literature on mining has stressed the need for moving from macro-scale data analysis to micro-scale analysis (Polat et al., 2014), not all micro-analysis takes into account the dynamics of local discourses in shaping economic opportunities in mining. A reoccurring theme in our interviews was that discourses of ‘local ownership of mineral resources’ popularised by the ZANU PF political party and the Zimbabwean government under the fast track land reform programme and subsequent indigenisation policies influenced the way ASGM unfolded. For example, at some mine sites such as Blue Grass in Sanyati, local youths forcibly occupied a mine in the name of indigenisation and local ownership of mineral resources. The youths who ousted the mine owner argued that mineral resources had been ‘liberated’ from colonial enclosure, with slogans such as ‘*pamberi nekuchera*’ (forward with digging) chanted before the youths went underground to dig. This is indicative of how the agrarian transformation process has necessitated the widespread engagement of peasants and other unemployed youths in ASGM with de facto government support although their activities remain illegal. More importantly, artisanal miners have also, in some cases, sought to instrumentalise membership of the ZANU PF political party to protect themselves from potential state violence and eviction (Mawowa, 2013; Mkodzongi, 2013). Although ASGM remains largely illegal in Zimbabwe, the ZANU PF government has adopted an ambiguous attitude towards *makorokoza*; on one hand they have been viewed as environmental bandits and criminals engaged in the illicit trade in gold who must be forcibly removed, as was the case in 2006 when the government violently evicted them under Operation *Chikorokoza Chapera* (Mawowa, 2013; Spiegel, 2014). On the other hand, senior ZANU PF politicians including Zimbabwe’s former president Robert Mugabe made announcements that ASGM must be decriminalised and that artisanal miners must not be arrested as long as they sell their gold to the state-owned Fidelity Printers and Refineries.

These pronouncements have not led to a shift in policy as their activities continue to be criminalised with artisanal miners periodically arrested and incarcerated for illegally selling gold. However, the post Mugabe government led by Zimbabwe’s new president Emmerson Mnangagwa has expressed a willingness to decriminalise ASGM through a simple registration involving a payment of US\$10 to acquire a permit. Time will tell if such a policy will be implemented. The continued criminalisation of ASGM has not ultimately led to a decrease in artisanal mining activities in Mhondoro Ngezi, as in other districts (Spiegel, 2017), even if short-term changes accrue. Instead artisanal mining has become a key part of the livelihoods of peasant households and other unemployed people from urban areas. ASGM has also attracted people from as far as China, with the Chinese now involved in the sector as sponsors buying gold and setting up gold milling facilities. As noted earlier, the involvement of the Chinese in ASGM has triggered new dynamics especially in the milling sector, where they are now competing with locals who have historically dominated the sector. An analysis of ASGM activities and the class dynamics that has underpinned them is provided below, followed by an analysis of linkages between ASGM and agriculture in the livelihoods of newly resettled peasant farmers.

3.2. Gold mining, social differentiation, and class dynamics in a changing agrarian context

The rapid social transformations in Mhondoro Ngezi linked to gold mining have diverse histories and class dynamics that stretch across rural/urban divides. One way of categorising socio-economic relations lies in a friction between ‘villagers’ and ‘investors’ – a reoccurring theme in Mhondoro Ngezi, as some villagers have become active in protesting perceived human rights abuses and invasions in mining claims (Newsday, 2016). However, engaging with class dynamics in relation to the mining/farming nexus requires a multi-faceted historicised understanding that, we argue, needs to pay attention to the heterogeneous – and socially and territorially uneven – implications of fast track land reforms. The way in which the FTLRP opened up formerly enclosed large scale commercial farming areas varied considerably, in enabling new mineral discoveries to be made for diverse

segments of the population – poor peasants, unemployed youths, senior civil servants, army and police officers, politicians, and other businessmen. The gold value chain saw poor peasants and unemployed youths doing the most labour intensive work of digging, while politicians and urban businessman tended to be sponsors employing the poor to mine on their behalf, operating stamp mills that they hired out to miners and acting as gold buyers. Far from being a simple binary of villager versus investor, a complex network of power relations emerged; powerful actors in mining and farming economics, each with their own complex social networks, often became inseparable.

In some cases gold rush sites consisted of old gold mines abandoned by their owners when mining had become less profitable or when low-grade ores were no longer economically viable to mine. In other cases, they were newly discovered sites on farmlands. Interviews with resettled farmers indicated that when some farmers discovered gold on their farm they would allow people to mine for a fee. The payment is normally in the form of an agreed upon percentage of the total stones mined per day, week, or month, highlighting relations of cooperation rather than conflict between farmers and miners. In some places miners and farmers are the same people undertaking both activities simultaneously, and their labour identities can be multi-faceted and fluid in ways that defy simple categorisation. A gold rush often leads to a hive of activity in the local area with petty commodity brokering businesses mushrooming in the surrounding area. These are a range of retailing businesses selling food, alcohol, and mining equipment such as picks, shovels, and torches. Women are also involved in such businesses selling food and providing temporary accommodation to miners. Mine sites also create markets for agricultural produce that tend to benefit local farmers. Although these businesses are temporary in nature as they tend to disappear after a gold boom at that particular site, they create economic opportunities for local communities near the gold panning sites.

Sponsors also act as buyers of gold who are sometimes connected to a shadowy network of a gold smuggling syndicate stretching from rural Zimbabwe to South Africa. Interviews with some sponsors (Interview with Timba in Harare) suggest that a large amount of gold mined by artisanal miners in Zimbabwe leaves the country for South Africa through illicit gold sells. Sponsors also sell some of the gold to the government owned Fidelity Printers and Refineries, to reduce suspicion from authorities. Because of the secretive nature of the gold smuggling syndicates, it is difficult to estimate how much gold leaves the country and precisely how smuggling syndicates operate. Syndicates work with police, politicians, and other security services. Some of those involved in the illicit trade in gold claim that almost half of Zimbabwe's annual gold output is smuggled to South Africa through porous borders.⁵ The proliferation of gold smuggling syndicates is influenced by diverse factors. These include, among others, the illegal nature of ASGM that forces artisanal miners to sell their gold through informal markets for fear of arrest. Linked to the above is the perception among miners that the government owned Fidelity Printers and Refineries does not offer competitive prices thus forcing them to utilise informal markets to sell their gold.

Although sponsors tend to be businessmen, politicians, or senior civil servants based in cities, some local farmers who started as labourers digging on behalf of others can eventually work their way to become gold buyers operating their own gold mines. For example, in an interview in October of 2016, a Harare-based businessman had used some of the profits from his mining labour to open his own gold mine then accumulated enough capital to diversify from mining to opening a countrywide furniture business worth millions of dollars. Other miners interviewed explained how they started as a family syndicate, sharing labour costs and equipment, until they had enough capital to acquire mining equipment such as water pumps, compressors, and generators which they hire out to other miners. As clearly not everyone is able to progress from being an ordinary labourer, and difficulties confront miners in terms of finding gold and selling it, many 'keep one foot in their farm and the other foot in mining' – as a miner observed during an interview in 2016, explaining: 'mining is a business of luck, you can make it or you might not get anything' (interview with Chosa at Just Right farm). Indeed, mining is a business of 'luck' that has allowed some to accumulate from below and diversify their

enterprises beyond mining, while others continue to struggle with limited social mobility as observed by this interviewee:

I am a miner, but I also said when starting off you will be farmer looking for money while you are farming. The money you get from farming you try to invest into the ground, you see now, so after you have started production it does not just start right away after opening the mine you first have to struggle for many-many years like we are struggling now. We are currently having a hard time trying to figure out where the gold is, you might have a loss when you spend money buying food for workers, diesel for the compressor as you try to find out where you can get the sample⁶ you see. So when you finally get the sample you would have struggled. You would have forked out a lot of money that you are not guaranteed to recover because you have to give people working for you some food. The money doesn't come back because you will be struggling to find the gold. How can we survive, the worker and I, you see, that's where the issue is. (Interview with Bashu at Lincoln farm)

As the above words indicate, 'trying to figure out where the gold is' is a central feature of the social dynamics of struggle. Indeed as Grätz (2013) wrote in West African contexts, mining camps are 'frontiers' where a *plurality* of migration dynamics, territorial relations, and regimes of social change coalesce, where different spatial strategies are constantly being reformulated and adapted. In Mhondoro Ngezi, labour dynamics in digging and in the processing of gold bearing ores take place in a wide range of locations – and are illustrative of how extractive frontiers are always in flux as sites of 'ever-intensifying forms of resourcefulness' (Tsing, 2005, p. 32). Due to lack of mechanisation, artisanal miners often favour mining in disused mines abandoned after the colonial era, so called 'German shafts'.⁷ Mining also takes place along riverbeds, especially for alluvial gold, or new locations initiated after gold is detected. This is especially the case in newly resettled areas where farmers are now prospecting for gold on their plots. Across the three locations that are the focus of this article, mining takes place in both old workings abandoned by their former owners and newly opened up pits where mining has been started. Mining at such places involves new blasting and pumping of water in holes. Some miners make openings with the hope of reaching the abandoned shafts underground, which they can then follow based on the presumed presence of gold. Increasingly, makorokoza are using both technological equipment such as metal detectors and geological knowledge acquired through many years of gold mining to make decisions about where to dig and the possibility of finding gold. However, going underground, especially where mining takes place in disused mine shafts, is dangerous and has led to many fatalities across the countryside that have been reported in the media. The dramatic increase in artisanal mining after Zimbabwe's land reform means fatal accidents are on the increase with many of them going unreported. Although there are similarities in gold rushes, they are ultimately influenced by geological, socio-economic, and political dynamics that cannot be generalised. While exploitative relations persist at many gold mining and panning sites, there are variations as to how such exploitation takes place in terms of its political economy, in some places there is less exploitation especially where the place that is being mined is presumed to be without an owner, and the mine belongs to the community as it were.

The ASM activities in Etina farm, Lincoln farm, and Just Right farm are such that those who do the actual digging must pay *several* fees in the form of tribute and rent; these vary significantly from one location to the other. For example, first of all they must pay rent to the farm owner (around 5% according to interviews), they then have to pay another percentage to the claim owner, who is the person with a legal entitlement to the mine, and then to the person who owns water pumping and blasting equipment. In some places the person who collects rents and tribute can be the same person as some farmers are also operating mines, while in other locations it could be several people. From the interviews with miners, an estimated 50 per cent of the total gold could be lost through such payments. After these expenses, they also have to share the remainder with sponsors who would have provided them with an advance to pay for food and other needs. Miners must also pay for milling

services although payments vary from one location to another. In some places, the mill owner does not charge for the milling, but retains the dump left after the initial extraction of gold. Since the milling process only extracts an estimated 30 per cent of gold per load milled, around 70 per cent of gold is left in the dump that is left at the mill and belongs to the mill owner. The mill owner will then take it through a much more efficient extraction process called cyanidation, which involves mixing the gold dump with cyanide to extract the gold. The process is more efficient than the first stage processing. It is widely known that the mill owner makes more money than ordinary miners due to his ability to use a more efficient extraction process which ordinary *makorokoza* cannot afford to use. However, at all the three sites visited, mill owners were charging for their services and also retaining the dump. This means they were making more money than those who milled for free and made money by further processing the gold dump. Depending on location, artisanal mining is underpinned by a hierarchical structure dominated by the sponsor, land-owner, claim owner, equipment owner, and the mill owner (who is sometimes a farmer). The ordinary miner who does most of the physical work sits at the bottom of the structure as the main source of labour. This is why most miners interviewed saw mining as a short-term objective of gaining enough capital to invest in less labour intensive businesses such as agriculture, gold buying, or starting petty commodity trading enterprises.

This dynamic (as also explored further in the section below) therefore, to some extent, provides a significant counter to the phenomenon of ‘hot money’ described in artisanal mining situations elsewhere in Africa (Walsh, 2003; Cartier & Bürge, 2011), where money from mining quickly goes into ostentatious and/or lucrative spending. Hot money is certainly seen in Mhondoro Ngezi, yet this is just one part of the spending story (and tends to be in friction with the idea that mining revenues support agriculture positively). As Werthmann (2008) has noted in Burkina Faso, narratives of ‘frivolous spending’ risk overlooking how artisanal mining creates valuable streams of revenue for mining camps, shaping social solidarities, and complex networks of economic life. Moreover, individualistic accounts of mining arguably overlook the deep sense of collaboration in mining. Across the mining sites visited, miners tend to operate in groups of five to 15 people in what they call ‘cooperatives’. Each team has its own pit, where the team works. Working as a team enables the cooperative to tap and leverage on the varied skills and experiences of the miners to enhance their success. These skills range from administrative skills in organising and executing work and negotiating with ‘sponsors’ and buyers to technical skills such as surveying and prospecting. Of equal importance is the ability to provide security for the team against predatory ‘Mbimbos’, gangsters that operate at mine sites and are known for forcing one out of the mine if news reaches them that you have struck a rich gold vein or even confiscating the ore before it goes for milling. Mbimbos are known to be armed with machetes and in some places they are known to use guns. During fieldwork we were told of an unverified report from a neighbouring farm (Four Stump) claiming that two people had died from a violent confrontation with the mbimbos two weeks earlier. We were thus discouraged from visiting the site for security reasons. These marauding mbimbos can demand ore from the miners or tribute as a protection fee. Research informants recounted their experiences of having survived violent confrontations with mbimbos. Some claimed that they were forced to vacate their pits or surrender their ore, while others showed us scars from the violent encounters.

3.3. Mining farmers and/or farming miners

‘I do mining the whole year through and I also do the farming, mining here and farming there, that is what I do’ (Interview with Chidemo at Lincoln farm).

Nationally, it has been said that over 145,000 peasant households gained access to new land as a result of the fast track land reform and subsequent policies by 2009, in the process giving them new access to both land and natural resources on the territory. Of this group, approximately 18 per cent came from urban areas (Scoones et al., 2011).⁸ In Mhondoro Ngezi, the majority of miners tend to be peasant farmers from the local area or from areas as far away such as Lower Gweru, Sanyati, and Gokwe. The final part of our argument is that understanding the farming/mining

nexus needs to be informed by recognition of the complex socio-economics of mobility and what drives mining by individuals and groups. While the stories of their mobility across mining sites vary, interviews show that most of them were attracted to artisanal mining by the need to gain some income at a time when agriculture alone could not sustain them. While a majority of miners interviewed in this study are poor peasants struggling to make ends meet and hence are employed as mine labourers or dig for survival, some have moved from being diggers to become sponsors hiring labour, buying gold, and running their own mines with all the requisite paperwork such as mining licences needed to legalise their operations. People's places of origin also determine what they invest in; for those who came from the urban areas, investments include raising poultry for resale, opening small corner shops, or buying second hand clothing in Mozambique for resale at the mine sites. However, those from a rural background tend to invest in livestock, agricultural inputs, and other domestic needs.

Importantly, interviews with the miners illustrate that it is not always the case that mine proceeds are invested in agriculture; investments can be made the other way around. For example, some miners have used proceeds from farming as start up capital to acquire mining equipment such as compressors and electricity generators. One such farmer had this to say:

The link between mining and farming is food, because if there is no farming there is no mining. How will you mine if you do not have food? Miners need to eat, at the farm people need to eat so these things go hand in hand from my point of view. Right now we already preparing for the farm, yes, you wake up in the morning and go to the farm and from there you go to supervise the people working at the mine. We are preparing for farming the time has already come as the rains will be here soon. (interview with Chitoro Lincoln farm)

The above captures a snapshot in the daily work of a mining farmer/farming miner, and it illustrates that in ASGM, people do not necessarily stop farming because they started mining, as artisanal mining is a process that sometimes takes a long time to find gold and realise income. Given the above, before miners find the gold or start making any money from mining, the farm remains the main source of livelihood. As noted by an informant during another interview:

Both mining and farming pays, but mining is painful because in mining you struggle a lot before getting any money while you spend money, that is how it is, it is only when you are luck that you can make three times more money in mining than farming. I see farming and mining as two activities which go hand in hand because if you don't farm what will you eat at the mine, what will you eat in the home, the people who will be working at the mine want food so you have to farm. (Interview with Chambe at Etina)

The above reflects that those involved in ASGM must endure long periods without finding any gold or making any money. However, there are ongoing expenses to paid such as labour and running mining equipment. As the miner observed in the interview, when your mine stops yielding gold you do not abandon it but have to continue digging with the hope that one day you will come across the gold. For many miners when faced with such a situation they will either continue digging with the hope that they will eventually strike gold or they will move to another site. During such difficult times farming can sustain the mine operation when it is not profitable. Farming can be a source of food and capital that can be invested in the mining operation at a time when it is actually unprofitable.

No I don't see anything difficult in managing both mining and farming, there is nothing hard because if you are passionate about both things, you will encounter no problems in undertaking them. You must just remember both things and manage them very well knowing that if I do this at such a time I will go there, at such a time I am here, so you work with time as someone on a

farm or on a ticket, yes, by 6 o'clock I have to be in the farm, by 10 o'clock I have to be out, I give myself 30 minutes to rest and then I go. (Interview with Mhofu at Etina)

Not seeing 'anything difficult' in managing both farming and mining is clearly a position that is not shared by all people, yet the above interviewee is expressing a view shared by many: that hope and belief in hard work as a path to a better livelihood sustains mining. Although many miners go for long periods without actually getting any gold, rumours of people having found gold nearby or far off can encourage those struggling that one day they will come across a rich vein of gold. This means mining is a game of patience; one does not just start mining and get gold. Those who lack patience leave after a short period while those with patience continue digging until they come across a good 'sample'. Another way of increasing one's chances is to arrive early at a new gold rush site, before the mine is exhausted. This is why miners are highly mobile as this increases their chances of getting gold. Others adopt a more long-term investment view. They can continue to dig at one place with very little no gold findings sometimes for a couple years, especially if the geology is promising with signs of the potential presence of gold. As the above accounts suggest, gold is important in different ways for people involved in farming, prompting us to conclude by revisiting a fundamental question: *why is gold valuable?* This question was posed by Schoenberger (2010) in a global analysis and his answer is that value is 'a function of a range of conditions and relationships', where the 'physical qualities' and 'natural scarcity' of gold matter along with the social relations that underpin the modes of production and dynamics of trade. Certain types of gold have become particularly contentious in Mhondoro Ngezi, where in 2016 there have been growing concerns that a centralisation over the power to licence riverbed alluvial gold mining creates an unfair 'monopoly for the government' (Newsday, 2016). Concerns have also arisen that those who depend on primary ore small-scale gold mining and farming are not receiving adequate support for either, and that barriers to licensing ASGM remain bureaucratically complex. Longstanding problems in terms of unequal access to government support services and mining equipment loan programmes (Spiegel, 2012) have continued to be pressing concerns. Donor agency interventions to support ASGM have often been very limited in scope and, although Kadoma (near Mhondoro Ngezi) was part of a UK-funded development programme assessment in Zimbabwe's ASGM sector (PACT, 2016), active support for enhancing technologies and improving linkages between mining and farming have yet to materialise in concrete development policies with significant reach. Despite new government announcements about plans for formalising ASGM and providing new mining and farming equipment to rural constituencies in 2018 prior to national elections, many in rural areas have not seen the benefits of such support policies, while the informal nature of livelihoods continues to leave many vulnerable to exploitation by powerful and politically connected actors.

4. Conclusion

Zimbabwe's fast track land reforms, as noted by Moyo, reversed 'the underlying logic of settler-colonial agrarian relations founded on racial monopoly control over land that deprived peasants of land-based social reproduction' (Moyo, 2011, p. 7). Moreover, while land reform reconfigured access to land, it also 'liberated' natural resources, contributing to the upsurge in ASGM activities. In exploring land use after land reform, this article has challenged the widespread stereotype of mining and farming as being in a conflict-ridden antagonistic relationship. The accounts of miners drew attention to the realities of inter-locking livelihoods – how ASGM is not necessarily replacing peasant farming, but rather complementing it as a source of income. Although in some places conflicts between miners and farmers have been recorded in Mhondoro Ngezi, a focus on such conflict risks overlooking the fact that miners and farmers increasingly are the same people, for whom these two activities are inextricably intertwined. Mhondoro Ngezi's experiences are not unlike other places in Zimbabwe in this regard. Artisanal and small-scale gold mining has unfolded in central Zimbabwe in ways that defy common 'myths'

and ‘generalisations’, especially regarding the link between gold mining and farming. A clear message emerging from our analysis is the need to avoid prefiguring notions of ‘farmers’ or ‘miners’ with pre-conceived assumptions (for example about a ‘defence’ of location against encroachment); as we discussed, there is much variability – especially as some farmers willingly invite people to mine on their land in exchange for a fee, and some ‘farming miners’ and ‘mining farmers’ are engaged in both farming and mining at the same place.

However, we have also shown that the extent to which those engaged in ASGM in Mhondoro Ngezi have benefited (or have struggled) as a consequence varied drastically. Some have accumulated enough capital to hire labour and acquire assets while some remain wage labourers. This case study thus resonates with what Scoones et al. (2012) argued regarding the need to appreciate complex class dynamics when disentangling ‘processes of rural differentiation’ that have emerged in the wake of land reforms. Although ASGM has become an important source of income and employment for peasants and other unemployed people from urban areas, in addition to its deleterious impacts on health and the environment, its dynamics are often marked by exploitative labour relations which pits those with capital, so called ‘sponsors’, against the labourers – often poor peasants/unemployed youths. Although not everyone in a gold mining community can ‘attain the dream’ of becoming a wealthy miner, many of those digging for gold hope to escape the laborious physical work by climbing up the ASGM value chain to become mine owners or sponsors hiring others to dig on their behalf. There is a need for both academics and policy-makers to learn from the struggles that such labourers experience and to recognise that existing mining laws and policies, which focus on the ‘established’ small-scale mining entrepreneurs, need to better appreciate that ASM is still, for many, a vital source of income or coping strategy – and for whom artisanal mining can be a local strategy to advance smallholder agriculture as well.

Finally, to conclude, our analysis also points to the wider complexity of linking accounts of agrarian and mining sector transformations at a larger national scale. Mhondoro Ngezi’s ASGM sector is part of a larger story of the illicit trade in gold, in this regard exemplifying a situation of the primitive accumulation that is unfolding in Zimbabwe’s resource economy. As ‘sponsors’ are often powerful actors – for example politicians, civil servants, military personnel, or Chinese businessmen – giving more nuanced attention to their varying roles at different times and in different places could help significantly to move past the simplified depiction of ASGM as an activity undertaken by the rural poor and to recognise that farming/mining linkages can be produced out of larger political processes as much as local livelihood challenges. This is not to say that ongoing rural transformation processes in post land reform Zimbabwe have not opened up opportunities for livelihood diversification among the poor. Rather, it is to recognise that mining/farming dynamics need to be understood as closely linked to the ongoing economic and political challenges of a country experiencing protracted post-colonial struggles for fair resource access and land use. In understanding mining/farming linkages, academics need to pay careful attention to how politicised discourses of natural resource ownership and indigenisation can lead to remarkably uneven effects.

Acknowledgements

We would like to express thanks to everyone who participated in the research as well as everyone who offered feedback on the issues, perspectives, and arguments discussed in this article. We would also like to extend an invitation to anyone who is interested in further data related to this research to contact either of the authors; we would be pleased to share additional information, datasets, and analysis.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the Economic and Social Research Council [grant number ES/N006240/1].

Notes

1. The names of the informants have been changed to protect their identity.
2. Some interviewees indicated that Chinese involvement in ASGM was disrupting traditional milling technologies epitomised by the stamp mill, through the introduction of a portable hammer mill that is believed to be more efficient in gold extraction. Historical analysis on socio-economic aspects of milling in Zimbabwe illustrates that milling has a long and complex history of exploitation (Spiegel, 2009b).
3. Miners use the word sample to refer to gold bearing ores.
4. In artisanal mining language, money is used to refer to gold.
5. Transparency International Zimbabwe and other NGOs have written about illicit activity in this sector's economy as part of a 'resource curse' dynamic (Transparency International Zimbabwe, 2013).
6. A sample is a common word used by miners to describe gold bearing stones.
7. Some artisanal miners interviewed across various geographical locations tend to refer to old mine workings as German shafts, as it is claimed they were abandoned by the Germans during the colonial era. This has been observed during our research in other districts in Zimbabwe as well.
8. This figure is for A1 schemes – oriented for small-scale farmers (with the average A1 family farm being 37 hectares); additional people accessed land through A2 schemes (with the average size of new A2 farms being 318 hectares) (see Scoones et al., 2011).

References

- Aizawa, Y. (2016). Artisanal and small-scale mining as an informal safety net: Evidence from Tanzania. *Journal of International Development*, 28(7), 1029–1049.
- Banchirigah, S. M., & Hilson, G. (2010). De-agrarianization, re-agrarianization and local economic development: re-orientating livelihoods in african artisanal mining communities. *Policy Sciences*, 43(2), 157–180.
- Baudron, F., Andersson, J. A., Corbeels, M., & Giller, K. E. (2012). Failing to yield? Ploughs, conservation agriculture and the problem of agricultural intensification: An example from the Zambezi Valley, Zimbabwe. *Journal of Development Studies*, 48(3), 393–412.
- Bryceson, D. F. (2004). Agrarian vista or vortex: African rural livelihood policies. *Review of African Political Economy*, 31(102), 617–629.
- Bryceson, D. F., & Geenen, S. (2016). Artisanal frontier mining of gold in Africa: Labour transformation in Tanzania and the Democratic Republic of Congo. *African Affairs*, 459, 296–317.
- Bryceson, D. F., & Jönsson, J. B. (2009). Gold digging careers in Rural East Africa: Small-scale miners livelihood choices. *World Development*, 38(3), 379–392.
- Cartier, L. E., & Bürge, M. (2011). Agriculture and artisanal gold mining in Sierra Leone: Alternatives or complements? *Journal of International Development*, 23(8), 1080–1099.
- Chari, T. (2013). Media framing of land reform in Zimbabwe. In S. Moyo & W. Chambati (Eds.), *Land and agrarian reform in Zimbabwe beyond white-settler capitalism* (pp. 291–329). Dakar: CODESRIA and AIAS.
- Chimhowu, A., & Woodhouse, P. (2008). Communal tenure and rural poverty: Land transactions in Svosve Communal Area, Zimbabwe. *Development and Change*, 39(2), 285–308.
- Chimhowu, A., & Woodhouse, P. (2010). Forbidden but not suppressed: A 'vernacular' land market in Svosve Communal Lands, Zimbabwe. *Africa: the Journal of the International African Institute*, 80(1), 14–35.
- Dube, N., Moyo, F., Sithole, M., Neube, G., Nkala, P., Tshuma, N., & Mabhena, C. (2016). Institutional exclusion and the tragedy of the commons: Artisanal mining in Matabeleland South Province, Zimbabwe. *The Extractive Industries and Society*, 3(4), 1084–1094.
- Fisher, E., Mwaipopo, R., Mutagwaba, W., Nyange, D., & Yaron, G. (2009). The ladder that sends us to wealth: Artisanal mining and poverty reduction in Tanzania. *Resources Policy*, 34(1–2), 32–38.
- Grätz, T. (2013). *The "frontier" revisited: Gold mining camps and mining communities in West Africa*. (Working Paper No. 10). Berlin: Zentrum Moderner Orient.
- Hilson, G. (2011). Artisanal mining, smallholder farming and livelihood diversification in rural Sub-Saharan Africa: An introduction. *Journal of International Development*, 23(8), 1031–1041.
- Hilson, G. (2016). Farming, small-scale mining and rural livelihoods in Sub-Saharan Africa: A critical overview. *The Extractive Industries and Society*, 3(2), 547–563.
- Hilson, G., & Garforth, C. (2012). 'Agricultural poverty' and the expansion of artisanal mining in Sub-Saharan Africa: Experiences from Southwest Mali and Southeast Ghana. *Population Research and Policy Review*, 31(3), 435–464.

- Hilson, G., & Maconachie, R. (2017). Formalizing artisanal and small-scale mining: Insights. *Contestations and Clarifications Area*, 49(4), 443–51.
- Hilson, G., Hilson, A., Maconachie, R., McQuilken, J., & Goumandakoye, H. (2017). Artisanal and small-scale mining (ASM) in sub-Saharan Africa: Re-conceptualizing formalization and ‘illegal’ activity. *Geoforum*, 83, 80–90.
- Hoddinott, J. (2006). Shocks and their consequences across and within households in rural Zimbabwe. *Journal of Development Studies*, 42(2), 301–321.
- Huggins, C., Buss, D., & Rutherford, B. (2017). A ‘cartography of concern’: Place-making practices and gender in the artisanal mining sector in Africa. *Geoforum*, 83, 142–152.
- Kamete, A. (2008). When livelihoods take a battering... Mapping the ‘New Gold Rush’ in Zimbabwe’s Angwa-Pote Basin. *Transformation: Critical Perspectives on Southern Africa*, 65(1), 36–67.
- Kevane, M. (2015). Gold mining and economic and social change in West Africa. In C. Monga & J. Y. Lin (Eds.), *The Oxford handbook of Africa and economics, Volume 2: Policies and Practices*. Oxford: Oxford University Press.
- Laurie, A. (2016). *The land reform deception: Political opportunism in Zimbabwe’s land seizure era*. Oxford: Oxford University Press.
- Mabheba, C. (2012). Mining with a ‘Vuvuzela’: Reconfiguring artisanal mining in Southern Zimbabwe and its implications to rural livelihoods. *Journal of Contemporary African Studies*, 30(2), 219–233.
- Maconachie, R. (2011). Re-agrarianising livelihoods in post-conflict Sierra Leone? Mineral wealth and rural change in artisanal and small-scale mining communities. *Journal of International Development*, 23(8), 1054–1067.
- Maconachie, R., & Binns, T. (2007). ‘Farming miners’ or ‘mining farmers’?: Diamond mining and rural development in post-conflict Sierra Leone. *Journal of Rural Studies*, 23(3), 367–380.
- Maconachie, R., & Hilson, G. (2011). Artisanal gold mining: A new frontier in post-conflict Sierra Leone? *Journal of Development Studies*, 47(4), 595–616.
- Makore, G., & Zane, V. (2012). *Mining within Zimbabwe’s Great Dyke: Extent, impacts & opportunities* (pp. 25 p). Harare: Zimbabwe Environmental Lawyers Association (ZELA).
- Maponga, O., & Ngorima, C. F. (2003). Overcoming environmental problems in the gold panning sector through legislation and education: The Zimbabwean experience. *Journal Of Cleaner Production*, 11(2), 147–157.
- Mawowa, S. (2013). The political economy of artisanal and small-scale gold mining in Central Zimbabwe. *Journal of Southern African Studies*, 39, 921–36.
- Mkodzongi, G. (2013). New people, new land and new livelihoods: A micro-study of Zimbabwe’s fast-track land reform. *Agrarian South: Journal of Political Economy*, 2(3), 345–366.
- Mkodzongi, G. (2016). ‘I am a paramount chief, this land belongs to my ancestors’: The reconfiguration of rural authority after Zimbabwe’s land reforms. *Review of African Political Economy*, 43(sup1), 99–114.
- Mondlane, S., & Shoko, D. S. M. (2003). The socio-economic and environmental impacts of artisanal and small-scale mining in Mozambique. In G. M. Hilson (Ed.), *The socio-economic impacts of artisanal and small-scale mining in developing countries* (pp. 265–280). A.A. Balkema: The Netherlands.
- Moyo, S., & Yeros, P. (Eds.). (2005). *Reclaiming the land: The resurgence of rural movements in Africa, Asia and Latin America*. London: Zed Books.
- Moyo, S. (2011). Three decades of agrarian reform in Zimbabwe. *Journal of Peasant Studies*, 38(3), 493–531.
- Moyo, S., & Mine, Y. (Eds.). (2016). *What colonialism ignored: African potentials’ for resolving conflicts in Southern Africa*. Bamenda: Langaa RPCIG.
- Mpofu, S., & Mpofu, T. P. (2017). Assessment of knowledge levels and attitudes of Artisanal gold miners towards chemical contamination in the Mhondoro-Ngezi District, Zimbabwe. *International Open and Distance Learning Journal*, 1(2), 22–32.
- Museumwa, M. (2009). Contestation over Resources: The farmer-miner dispute in colonial Zimbabwe, 1903-1939. *Environment and History*, 15(1), 79–107.
- Mushongah, J., & Scoones, I. (2012). Livelihood change in rural Zimbabwe over 20 years. *Journal of Development Studies*, 48(9), 1241–1257.
- Mutemeri, N., Walker, J., Coulson, N., & Watson, I. (2016). Capacity building for self-regulation of the Artisanal and Small-Scale Mining sector: A policy paradigm shift aligned with development outcomes and a pro-poor approach. *Extractive Industries and Society*, 3(3), 653–658.
- Ncube-Phiri, S., Mucherera, B., & Ncube, A. (2015). Artisanal small-scale mining: Potential ecological disaster in Mzingwane District. *Zimbabwe: Original Research. Jambá: Journal of Disaster Risk Studies*, 7(1), 1–11.
- Newsday, (2016, September 23). Mhondoro-Ngezi villagers seek to influence mining legislation. *Newsday*, By Manayiti, O. Retrieved from <https://www.newsday.co.zw/2016/09/23/mhondoro-ngezi-villagers-seek-influence-mining-legislation/>
- PACT. (2015). *A golden opportunity: Scoping Study of artisanal and small-scale gold mining in Zimbabwe* (pp. 174). Washington DC: Report to UK Department for International Development.
- PACT. (2016). *A golden opportunity: Artisanal and small-scale gold mining in Zimbabwe*. Washington DC. Retrieved from <https://www.pactworld.org/library/golden-opportunity-artisanal-and-small-scale-gold-mining-zimbabwe>
- Persaud, A. W., Telmer, K., Costa, M., & Moore, M. (2017). Artisanal and small-scale gold mining in Senegal: Livelihoods, customary authority, and formalization. *Society & Natural Resources*, 30(8), 980–993.
- Pijpers, R. (2014). Crops and carats: Exploring the interconnectedness of mining and agriculture in sub-Saharan Africa. *Futures*, 62, 32–39.

- Polat, B., Aktakke, N., Aran, M., Dabalén, A., Chuhan-Pole, P., & Sanoh, A. (2014). *Socioeconomic impact of mining activity: Effects of gold mining on local communities in Tanzania and Mali*. Development Analytics Research Paper Series # 1402, 93 p. Retrieved from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2533961
- Rutherford, B. (2016). *Farm labor struggles in Zimbabwe: The ground of politics*. Bloomington: Indiana University Press.
- Rutherford, B. (2017). The land reform deception: Political opportunism in Zimbabwe's Land Seizure Era by Charles Laurie. *African Studies Review*, 60(1), 212–214.
- Sachikonye, L. M. (2011). *Zimbabwe's lost decade: Politics, development & society*. Harare: African Books Collective.
- Schoenberger, E. (2010). Why is gold valuable? Nature, social power and the value of things. *Cultural Geographies*, 18(1), 3–24.
- Scoones, I. (2015). Zimbabwe's land reform: New political dynamics in the countryside. *Review of African Political Economy*, 42(144), 190–205.
- Scoones, I., Marongwe, N., Mavedzenge, B., Murimbarimba, F., Mahenehene, J., & Sukume, C. (2011). Zimbabwe's land reform: Challenging the myths. *Journal of Peasant Studies*, 38(5), 967–993.
- Scoones, I., Marongwe, N., Mavedzenge, B., Murimbarimba, F., Mahenehene, J., & Sukume, C. (2012). Livelihoods after land reform in Zimbabwe: Understanding processes of rural differentiation. *Journal of Agrarian Change*, 12(4), 503–527.
- Spiegel, S. J. (2009a). Resource policies and small-scale gold mining in Zimbabwe. *Resources Policy*, 34(1), 39–44.
- Spiegel, S. J. (2009b). Labour challenges and mercury management at gold mills in Zimbabwe: Examining production processes and proposals for change. *Natural Resources Forum*, 33(3), 221–232.
- Spiegel, S. J. (2012). Microfinance services, poverty and artisanal mineworkers in Africa: In search of measures for empowering vulnerable groups. *Journal of International Development*, 24(4), 485–517.
- Spiegel, S. J. (2014). Legacies of a nationwide crackdown in Zimbabwe: Operation Chikorokoza Chapera in gold mining communities. *Journal of Modern African Studies*, 52(04), 541–570.
- Spiegel, S. J. (2015). Shifting formalization policies and recentralizing power: The case of Zimbabwe's artisanal gold mining sector. *Society & Natural Resources*, 28(5), 543–558.
- Spiegel, S. J. (2017). EIAs, power and political ecology: Situating resource struggles and the techno-politics of small-scale mining. *Geoforum*, 87, 95–107.
- Stoeffler, Q., Alwang, J., Mills, B., & Tarvinga, N. (2016). Multidimensional poverty in crisis: Lessons from Zimbabwe. *The Journal of Development Studies*, 52(3), 428–446.
- Transparency International Zimbabwe, 2013. *Research Paper on the Power Dimension to Mineral Resource Corruption*. Retrieved from <http://tizim.org/wp-content/uploads/2016/05/Report6.pdf>
- Tsing, A. (2005). *Friction: An ethnography of global connection*. Princeton, NJ: Princeton University Press.
- Van Bockstael, S., Bockstael, S., & Vlassenroot, K. (Eds.). (2012). *A farmer's best friend?: Artisanal diamond mining and rural change in West and Central Africa*. Gent: Academia Press.
- Walsh, A. (2003). "Hot money" and daring consumption in a Northern Malagasy sapphire-mining town. *American Ethnologist*, 30(2), 290–305.
- Weng, L., Endamana, D., Boedihartono, A. K., Levang, P., Margules, C. R., & Sayer, J. A. (2015). Asian investment at artisanal and small-scale mines in rural Cameroon. *The Extractive Industries and Society*, 2(1), 64–72.
- Werthmann, K. (2008). "Frivolous squandering": Consumption and redistribution in mining camps. In J. Abbink & A. van Dokkum (Eds.), *Dilemmas of development: Conflicts of interest and their resolutions in modernizing Africa*. Leiden: African Studies Centre.
- Zwane, N., Love, D., Hoko, Z., & Shoko, D. (2006). Managing the impact of gold panning activities within the context of integrated water resources management planning in the Lower Manyame Sub-Catchment, Zambezi Basin, Zimbabwe. *Physics and Chemistry of the Earth A/B/C*, 31(15), 848–856.